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. 8791 7590		12/15/2006		EXAMINER	
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SEVENTH FLOOR				ART UNIT	PAPER NUMBER

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Please find below and/or attached an Office communication concerning this application or proceeding.

		Application No.	Applicant(s)		
		10/674,363	DIEFENBAUGH ET AL.		
	Office Action Summary	Examiner	Art Unit		
		Antonio A. Caschera	2628		
Period fo	The MAILING DATE of this communication app or Reply	ears on the cover sheet with the c	orrespondence address		
A SHO WHIC - Exter after - If NO - Failur Any r	ORTENED STATUTORY PERIOD FOR REPLY CHEVER IS LONGER, FROM THE MAILING DATES as a soint of time may be available under the provisions of 37 CFR 1.13 SIX (6) MONTHS from the mailing date of this communication. Period for reply is specified above, the maximum statutory period were to reply within the set or extended period for reply will, by statute, eply received by the Office later than three months after the mailing and patent term adjustment. See 37 CFR 1.704(b).	ATE OF THIS COMMUNICATION 36(a). In no event, however, may a reply be timused apply and will expire SIX (6) MONTHS from a cause the application to become ABANDONE	N. nely filed the mailing date of this communication. D (35 U.S.C. § 133).		
Status					
2a)⊠	Responsive to communication(s) filed on <u>27 Sec</u> This action is FINAL . 2b) This Since this application is in condition for allowar closed in accordance with the practice under E	action is non-final. nce except for formal matters, pro			
Dispositi	on of Claims	•			
5)□ 6)⊠ 7)⊠	Claim(s) 79-153 is/are pending in the application of the above claim(s) is/are withdraw Claim(s) is/are allowed. Claim(s) 79-97,99-123 and 125-153 is/are rejected in the application of the above claim(s) 79-97,99-123 and 125-153 is/are rejected in the application of	vn from consideration.			
Applicati	on Papers				
10)⊠	The specification is objected to by the Examine The drawing(s) filed on 31 October 2005 is/are: Applicant may not request that any objection to the Replacement drawing sheet(s) including the correct The oath or declaration is objected to by the Ex	a)⊠ accepted or b)⊡ objected drawing(s) be held in abeyance. See ion is required if the drawing(s) is obj	e 37 CFR 1.85(a). jected to. See 37 CFR 1.121(d).		
Priority u	inder 35 U.S.C. § 119				
 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f). a) All b) Some * c) None of: 1. Certified copies of the priority documents have been received. 2. Certified copies of the priority documents have been received in Application No. 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)). * See the attached detailed Office action for a list of the certified copies not received. 					
	e of References Cited (PTO-892)	4) Interview Summary			
3) 🔲 Inform	e of Draftsperson's Patent Drawing Review (PTO-948) nation Disclosure Statement(s) (PTO/SB/08) r No(s)/Mail Date	Paper No(s)/Mail Da 5) Notice of Informal P 6) Other:			

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DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 79, 80, 82, 83, 87, 89, 91, 92, 94, 95, 97, 102-104, 106, 107, 109, 110, 114, 116, 118, 119, 121, 122, 128, 129, 131-133, 137, 139-141 and 143-147 are rejected under 35 U.S.C. 102(e) as being anticipated by Matsuda (U.S. Patent 6,847,374 B2).

In reference to claims 79, 91, 106, 118, 131, 137, 139, 140, 141 and 143-145, Matsuda discloses an image display system, program and method complying with environmental conditions (see column 1, lines 10-11 and 46-52). Matsuda discloses the system comprising a projector for displaying image data and a color conversion section for converting RGB color signals into XYZ color signals (see column 9, lines 6-15). Matsuda discloses compensating for ambient brightness by modifying XYZ converted data based upon a luminance sensor (see column 9, lines 30-45). Matsuda also discloses the color conversion section converting the post corrected XYZ values into R'1G'1B'1 values and storing these values in a 3D look-up table storage section (see column 10, lines 20-23). Matsuda discloses performing gamma correction in R'G'B' color space using the 1D look-up table storage (see column 8, lines 31-37, column 10, lines 32-45 and #404 of Figure 3). Matsuda discloses a color conversion unit coupled to a color

control processing unit, which comprises the 1D brightness correction lookup table, and further coupled to a color control processing update unit performing the gamma correction (see column 9. lines 9-12, 30-33, column 10, lines 20-23, 34-36 and #404, 408, 420, 460 of Figure 3). Matsuda also discloses that the unit performing the gamma correction maybe implemented as a RAM (see column 14, lines 27-30) therefore, the Office interprets that gamma corrected color signals are inherently stored in such a RAM device. Matsuda discloses the system to display image data that reflect the visual environment where they are displayed by applying color correction after determining the visual environment (see column 5, lines 34-38). Note, in reference to claim 91, the Office interprets the RAM implemented, "control processing unit" (#420 of Figure 3) of Matsuda functionally equivalent to the first and second memories of the claim. Also, first and second conversion agent elements of the claim are interpreted as functionally equivalent to the combination of the color conversion (#408 of Figure 3), 3D-LUT storage (#409) and post correction 3D-LUT storage (#414) of Matsuda. Further, the Office interprets the color brightness agent of the claim functionally equivalent to the control processing update (#460 of Figure 3) and the gamma control agent element of the claim functionally equivalent to the combination of the color control processing update and 1D-LUT storage (#404 of Figure 3). Note, in reference to claims 106 and 141, Matsuda also discloses a program embodied on an information storage medium causing a computer to perform the above functions (see column 17, lines 28-30). Note, in reference to claim 118, Matsuda discloses a CPU controlling the image processing section of the projector (see column 7, lines 32-35) which the Office interprets as functionally equivalent to Applicant's graphics accelerator. Further, the Office believes Matsuda to inherently disclose at least one bus coupling the above mentioned

units as represented by the data pathways (arrows) of Figure 3 of Matsuda. Matsuda also discloses a colored light sensor coupled with the 3D lookup table, via several other units, detecting the visual environment around the display (see column 9, lines 34-36 and #417 of Figure 3). Note, in reference to claims 131 and 145, the Office interprets the image processing system of Matsuda to inherently disclose a memory for storing, at least temporarily, the original RGB data at the input signal processing and color control processing units (see #401 & 420 of Figure 3). Further, the first and second color transform agent elements of the claim are interpreted as functionally equivalent to the color conversion unit (#408 of Figure 3) and color control processing unit (#420) of Matsuda. Also, the Office interprets the first and second lookup tables of the claim functionally equivalent to the 3D-LUT storage (#409 of Figure 3) and post correction 3D-LUT storage (#414) of Matsuda. (further see *Response to Arguments* below).

In reference to claims 80, 92, 107 and 119, Matsuda discloses all of the claim limitations as applied to claims 79, 91, 106 and 118 respectively in addition, Matsuda explicitly discloses correcting color information (intensity) before performing gamma correction (see column 8, lines 26-30 and #403, 408, 409, 460, 404 of Figure 3).

In reference to claims 82, 94, 109 and 121, Matsuda discloses all of the claim limitations as applied to claims 79, 91, 106 and 118 respectively above in addition, Matsuda discloses the R'G'B color space to be the color space used to display the image on the projector (see Figure 3).

In reference to claims 83 and 110, Matsuda discloses all of the claim limitations as applied to claims 79 and 106 respectively above in addition, Matsuda discloses both color spaces

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to be in the RGB space (see color input RGB #401 and color after color conversion #408 R'G'B' of Figure 3).

In reference to claims 87 and 114, Matsuda discloses all of the claim limitations as applied to claims 79 and 106 respectively above in addition, Matsuda discloses determining image signal brightness correction information, seen as equivalent to Applicant's image brightness profile, generating a color transformation in the XYZ color space based upon the brightness correction and applying the transformation by storing the resultant color data (see column 9, lines 53-58, column 10, lines 17-23 and 32-41).

In reference to claims 89 and 116, Matsuda discloses all of the claim limitations as applied to claims 79 and 106 respectively above in addition, Matsuda discloses determining environment information for color correction, generating a color transformation in the XYZ color space based upon the environment information and applying the transformation by storing the resultant color data (see column 9, lines 34-45, column 10, lines 17-23 and 32-41).

In reference to claim 95, Matsuda discloses all of the claim limitations as applied to claim 97 in addition, Matsuda discloses an output signal processing unit that further modifies color data in the third (R'G'B') color space (see #405 of Figure 3). Note, the Office interprets that Matsuda inherently discloses some sort of memory device to store, at least temporarily, third color space further modified data as it is processed by #405, 441 to 406 of Figure 3 of Matsuda.

In reference to claims 97 and 102, Matsuda discloses all of the claim limitations as applied to claims 105 and 91 respectively in addition, Matsuda discloses performing the above described color conversion and brightness correction techniques using a personal computer (see

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column 16, lines 28-33) which the Office interprets to inherently comprise of a processor executing instructions.

In reference to claim 103, Matsuda discloses all of the claim limitations as applied to claim 91 in addition, Matsuda discloses utilizing a color lookup table for storing data in the second color space (XYZ) to modify the color data (see column 9, lines 30-33).

In reference to claim 104, Matsuda discloses all of the claim limitations as applied to claim 91 above in addition, Matsuda discloses compensating for ambient brightness by modifying XYZ converted data based upon a luminance sensor (see column 9, lines 30-45).

In reference to claim 122, Matsuda discloses all of the claim limitations as applied to claim 118 in addition, Matsuda discloses an output signal processing unit that further modifies color data in the third (R'G'B') color space (see #405 of Figure 3).

In reference to claim 128, Matsuda discloses all of the claim limitations as applied to claim 118 in addition, Matsuda discloses performing the above described color conversion and brightness correction techniques using a personal computer (see column 16, lines 28-33) which the Office interprets to inherently comprise of a processor executing instructions.

In reference to claim 129, Matsuda discloses all of the claim limitations as applied to claim 118 in addition, Matsuda discloses utilizing a color lookup table for storing data in the second color space (XYZ) to modify the color data (see column 9, lines 30-33).

In reference to claims 132 and 146, Matsuda discloses all of the claim limitations as applied to claims 131 and 145 respectively above in addition, Matsuda discloses the color conversion unit coupled to a color control processing unit, which comprises the 1D brightness correction lookup table, and further coupled to a color control processing update unit performing

the gamma correction (see column 9, lines 9-12, 30-33, column 10, lines 20-23, 34-36 and #404, 408, 420, 460 of Figure 3).

In reference to claims 133 and 147, Matsuda discloses all of the claim limitations as applied to claims 132 and 145 respectively above in addition, Matsuda discloses performing the above described color conversion and brightness correction techniques using a personal computer (see column 16, lines 28-33) which the Office interprets to inherently comprise of an operating system or executable operating instructions.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
- 2. Claims 81, 84-86, 93, 96, 99-101, 108, 111-113, 120, 123, 125-127, 135, 136, 149 and 150 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuda (U.S. Patent 6,847,374 B2).

In reference to claims 81, 93, 108, 120, 135, 136, 149 and 150, Matsuda discloses all of the claim limitations as applied to claims 79, 91, 106, 131 and 145 respectively. Although Matsuda explicitly discloses correcting color information (intensity) before performing gamma correction (see column 8, lines 26-30 and #403, 408, 409, 460, 404 of Figure 3), Matsuda does not disclose performing gamma correction before color correction. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to implement the color and

gamma correction techniques of Matsuda in a slightly different order to achieve the invention as claimed. Applicant has not disclosed that specifically performing gamma correction before color correction provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with the reverse order teachings of Matsuda because the exact order of which gamma and color correction is performed is matter chosen which best suits the application at hand. Further, it seems that Applicant's claims support such reasoning as claims 80 and 81 both claim the correction of gamma and color intensity in opposite orders thereby displaying that both configurations are possible and the specific order of processing provides no immediate criticality to the invention at hand. Therefore, it would have been obvious to one of ordinary skill in this art to modify Matsuda to obtain the invention as specified in claims 81, 93, 108, 120, 135, 136, 149 and 150.

In reference to claims 84-86, 99-101, 111-113 and 125-127, Matsuda discloses all of the claim limitations as applied to claims 79, 91, 106 and 118 respectively. Although Matsuda discloses utilizing the RGB, XYZ and modified R'G'B' color spaces (see above), Matsuda does not explicitly disclose utilizing the specific color space combinations as disclosed in claims 84-86, 99-101, 111-113 and 125-127. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to modify the system of Matsuda to support such specified color spaces thereby providing wider compatibility across multiple devices. Applicant has not disclosed that specifically utilizing RGB and HSI for first and second (after conversion) color spaces, for example, provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's

invention to perform equally well with the above teachings of Matsuda because the exact combination of color spaces utilized are chosen as matter of preference and to which best suit the application at hand. Further, the Office sees no immediate criticality in regards to which specific combination of color spaces is employed. Therefore, it would have been obvious to one of ordinary skill in this art to modify Matsuda to obtain the invention as specified in claims 84-86, 99-101, 111-113 and 125-127.

In reference to claims 96 and 123, Matsuda discloses all of the claim limitations as applied to claims 95 and 122 respectively above. Although the Office has interpreted the first and second memories as comprised within the same memory unit, RAM (see above rejection of claim 91 for example), Matsuda does not explicitly disclose having all first, second and third memories in a single memory device. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to implement the invention of Matsuda so that the same memory is used in performing color conversion, gamma transformation and other image processing. Applicant has not disclosed that explicitly having all first, second and third memories being comprised within the same unit provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with utilizing of the information storage medium, ROM and RAM as disclosed by Matsuda because the consideration of whether to use separate/unified memories for which functions of a system is a matter which is decided to best suit the invention at hand. Further, the limitation of utilizing a single memory device for first, second and third memories is seen as providing no immediate criticality to the application at

hand. Therefore, it would have been obvious to one of ordinary skill in this art to modify Matsuda to obtain the invention as specified in claims 96 and 123.

3. Claims 88, 90, 105, 115, 117, 130, 134, 138, 142, 148 and 151-153 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuda (U.S. Patent 6,847,374 B2) in view of Rossi (U.S. Patent 7,042,436).

In reference to claims 88, 115, 134, 138, 142 and 148, Matsuda discloses all of the claim limitations as applied to claims 87, 114, 131, 137, 141 and 145 respectively above. Although Matsuda discloses modifying image color data based upon image brightness information (see column 9, lines 53-58, column 10, lines 17-23 and 32-41), Matsuda does not explicitly disclose modifying a backlight intensity based upon such information. Rossi discloses a method for optimizing power in a computer which utilizes an LCD so that the intensity of a backlight is shifted from high to medium when switched to "battery power" mode and detected by an ambient light sensor (see column 1, lines 8-11 and column 3, lines 1-15). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the display power conservation techniques of Rossi with the color correction techniques of Matsuda in order to maximize load efficiency during "battery mode" thereby gaining the most amount of power consumption from a display of a computer, cell phone or digital television (see column 2, lines 10-19 of Rossi).

In reference to claims 90 and 117, Matsuda discloses all of the claim limitations as applied to claims 89 and 116 respectively. Matsuda does not explicitly disclose modifying a backlight intensity based on the ambient light level however Rossi does. Rossi discloses a method for optimizing power in a computer which utilizes an LCD so that the intensity of a

backlight is shifted from high to medium when switched to "battery power" mode and detected by an ambient light sensor (see column 1, lines 8-11 and column 3, lines 1-15). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the display power conservation techniques of Rossi with the color correction techniques of Matsuda in order to maximize load efficiency during "battery mode" thereby gaining the most amount of power consumption from a display of a computer, cell phone or digital television (see column 2, lines 10-19 of Rossi).

In reference to claims 105 and 130, Matsuda discloses all of the claim limitations as applied to claims 91 and 118 respectively. Matsuda does not explicitly disclose controlling a backlight intensity of a display device however Rossi does. Rossi discloses a method for optimizing power in a computer which utilizes an LCD so that the intensity of a backlight is shifted from high to medium when switched to "battery power" mode (see column 1, lines 8-11). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the display power conservation techniques of Rossi with the color correction techniques of Matsuda in order to maximize load efficiency during "battery mode" thereby gaining the most amount of power consumption from a display of a computer, cell phone or digital television (see column 2, lines 10-19 of Rossi).

In reference to claim 151, Matsuda discloses an image display system, program and method complying with environmental conditions (see column 1, lines 10-11 and 46-52). Matsuda discloses the system comprising a projector for displaying image data and a color conversion section for converting RGB color signals into XYZ color signals (see column 9, lines 6-15). Matsuda discloses compensating for ambient brightness by modifying XYZ converted

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data based upon a luminance sensor (see column 9, lines 30-45). Matsuda further discloses the projector of LCD type (see column 16, lines 5-15). Matsuda does not explicitly disclose reducing power consumption of a display having a battery by decreasing the display backlight intensity however Rossi does. Rossi discloses a method for optimizing power in a computer which utilizes an LCD so that the intensity of a backlight is shifted from high to medium when switched to "battery power" mode (see column 1, lines 8-11 and column 3, lines 1-6). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the display power conservation techniques of Rossi with the color correction techniques of Matsuda in order to maximize load efficiency during "battery mode" thereby gaining the most amount of power consumption from a display of a computer, cell phone or digital television (see column 2, lines 10-19 of Rossi).

In reference to claim 152, Matsuda and Rossi disclose all of the claim limitations as applied to claim 151 above in addition, Matsuda also discloses the color conversion unit to further convert the brightness corrected color data (XYZ) into R'G'B' color space (see column 10, lines 20-23) and the color processing update section further performing gamma correction upon the R'G'B' color data (see column 19, lines 34-41).

In reference to claim 153, Matsuda and Rossi disclose all of the claim limitations as applied to claim 151 above in addition, both Matsuda and Rossi disclose utilizing ambient light to compensating for color brightness of a display (see above rejection for Matsuda passage and column 3, lines 7-15 of Rossi).

Allowable Subject Matter

6. Claims 98 and 124 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

In reference to claims 96 and 124, the prior art of record does not explicitly disclose the color control agent using a color lookup table storing data in the first color space to further modify the color data in combination with the further limitations of claims 95 and 122, from which claims 96 and 124 depend upon.

Response to Arguments

- 7. The cancellation of claims 1-78 is noted.
- 8. Applicant's arguments filed 09/27/06 have been fully considered but they are not persuasive.

In reference to claims 79-153, Applicant argues that Matsuda does not teach compensating for a change in backlight intensity by modifying, in the second color space, a color intensity for one or more portions of the image (see bottom of page 10 of Applicant's Remarks).

The Office disagrees and points to column 9, lines 30-45 of Matsuda wherein compensation for ambient brightness by modifying XYZ converted data based upon a luminance sensor is disclosed. The Office broadly interprets that the term, "backlight intensity" of the claims is functionally equivalent to environmental or ambient light since there is no indication in the independent claims that the backlight is specific to a backlight of a display device. Even further support for such an interpretation is found in the fact that in some independent claims, the mentioning of a display device is not even present (see claim 79, for example). Even further

however, Matsuda does disclose his invention pertaining to a projector type display device (see column 7, lines 10-15 and column 9, lines 6-15) and further discloses performing brightness correction by modifying color intensity (see column 9, lines 30-45). Therefore, it can be interpreted that since Matsuda performs brightness correction upon a light projecting display device using a luminance sensor, Matsuda then inherently compensates for a change in projector brightness, via a sensed change in the luminance detector, by modifying XYZ converted data. Therefore, the Office interprets Matsuda to disclose such a limitation as argued above and maintains Matsuda as an applied prior art reference.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Antonio Caschera whose telephone number is (571) 272-7781.

The examiner can normally be reached Monday-Thursday and alternate Fridays between 7:00 AM and 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee Tung, can be reached at (571) 272-7794.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

571-273-8300 (Central Fax)

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (571) 272-2600.

aac

12/9/06 Antonio Caschera

Patent Examiner

MARK ZIMMERMAN SUPERVISORY PATENT EXAMINER TECHNOLOGY CENTER 2600